AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A diaphragm pump comprising:

a pressure chamber formed into a flat shape and ~~is~~ filled up with liquid;

a suction side flow passage and a discharge side flow passage disposed at ~~both~~opposite ends of the pressure chamber so that axes thereof are aligned with each other and are connected with the pressure chamber;

at least one groove formed in a peripheral wall of the pressure chamber ~~and~~ for acceleration~~ing~~ of a flow of the liquid downstream in a flow direction; and

at least one diaphragm disposed on at least one of an upper surface and a lower surface of the pressure chamber ~~and~~ for oscillation to make a volume of the pressure chamber variable.

2. (original): The diaphragm pump according to Claim 1, wherein the groove has a part with an opening in the upper surface facing the pressure chamber, into which the liquid flows, and a side part with an opening opened to a peripheral wall surface of the pressure chamber, from which the liquid is discharged downstream in the flow direction.

3. (currently amended): The diaphragm pump according to Claim 1 or 2, wherein the groove is extended in a radial direction from~~while~~ a center point in the vicinity of an entrance of the discharge side flow passage~~ is set as the center~~.

4. (previously presented): The diaphragm pump according to any one of Claims 1 or 2, wherein the axes are positioned at the center of a cross-sectional shape of the pressure chamber in a surface orthogonal to the axes.

5. (previously presented): The diaphragm pump according to any one of Claims 1 or 2, wherein each cross-sectional shape of the pressure chamber, the suction side flow passage, and the discharge side flow passage in a surface orthogonal to the axes are formed in an approximate rectangle.

6. (original): The diaphragm pump according to Claim 5, wherein a lower surface of the pressure chamber and the lower surfaces of the suction side flow passage and the discharge side flow passage are formed on the same surface.

7. (currently amended): The diaphragm pump according to any one of Claims 1~~,~~ or 2 ~~or 6~~, wherein a length of the pressure chamber viewed from an upper surface in a direction orthogonal to the axes is continuously shortened toward the suction side flow passage or the discharge side flow passage.

8. (currently amended): The diaphragm pump according to any one of Claims 1~~,~~ or 2 ~~or 6~~, wherein a height of the pressure chamber is continuously lowered toward the suction side flow passage or the discharge side flow passage.

9. (currently amended): The diaphragm pump according to any one of Claims 1~~,~~ or 2~~ or 6~~, further comprising:

check valves, respectively disposed on the suction side flow passage and the discharge side flow passage, at least one of the check valves being tilted relative to a direction of the axes.

10. (currently amended): The diaphragm pump according to any one of Claims 1~~,~~ or 2~~ or 6~~, further comprising:

at least one intake opened to an upper surface of the suction side flow passage and to introduce bubbles mixed in the liquid; and

a sealed space connected with the intake and to collect the introduced bubbles.

11. (original): The diaphragm pump according to Claim 10, wherein the intake is positioned in the suction side flow passage upstream relative to the check valve.

12. (currently amended): The diaphragm pump according to any one of Claims 1~~,~~ or 2~~, 6 or 11~~, wherein the diaphragm is a piezoelectric oscillator driven by a piezoelectric element.

13. (currently amended): A cooling system comprising:

the diaphragm pump according to any one of Claims 1~~,~~ or 2~~, 6 or 11~~; and

a closed-structure flow passage for circulating liquid discharged from the discharge side flow passage in the diaphragm pump and for returning the liquid to the suction side flow passage.

14. (new): The diaphragm pump according to Claim 6, wherein a length of the pressure chamber viewed from an upper surface in a direction orthogonal to the axes is continuously shortened toward the suction side flow passage or the discharge side flow passage.

15. (new): The diaphragm pump according to Claim 6, wherein a height of the pressure chamber is continuously lowered toward the suction side flow passage or the discharge side flow passage.

16. (new): The diaphragm pump according to Claim 6, further comprising:

check valves, respectively disposed on the suction side flow passage and the discharge side flow passage, at least one of the check valves being tilted relative to a direction of the axes.

17. (new): The diaphragm pump according to Claim 6, further comprising:

at least one intake opened to an upper surface of the suction side flow passage and to introduce bubbles mixed in the liquid; and

a sealed space connected with the intake and to collect the introduced bubbles.

18. (new): The diaphragm pump according to Claim 17, wherein the intake is positioned in the suction side flow passage upstream relative to the check valve.

19. (new): The diaphragm pump according to Claim 6, wherein the diaphragm is a piezoelectric oscillator driven by a piezoelectric element.

20. (new): A cooling system comprising:

the diaphragm pump according to Claim 6; and

a closed-structure flow passage for circulating liquid discharged from the discharge side flow passage in the diaphragm pump and for returning the liquid to the suction side flow passage.

21. (new): The diaphragm pump according to Claim 11, wherein the diaphragm is a piezoelectric oscillator driven by a piezoelectric element.

22. (new): A cooling system comprising:

the diaphragm pump according to Claim 11; and

a closed-structure flow passage for circulating liquid discharged from the discharge side flow passage in the diaphragm pump and for returning the liquid to the suction side flow passage.